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that the apparent decrease of 79 deaths per 100,000 may be due merely to a decrease in the proportion of young children in the population. Strong evidence to this effect is furnished by the fact that the ratio of deaths under one, to births has shown an increase. With regard to measles, whooping-cough, and cerebro-spinal meningitis it does not appear that sanitary measures have produced, or can as yet produce, any appreciable effect. In a number of diseases apparently decreased death-rates are attributed almost wholly to change in diagnosis. Under this heading come diseases of the brain, convulsions, hydrocephalus, debility, teething, old age, dropsy, and unknown causes. Dr. Chapin considers the apparent increase in cancer, heart disease, and renal disease as largely or wholly due to transfers from the more indefinite causes of death and to change in the age distribution of the population.

The apparent increase in pneumonia and bronchitis does not escape the author's pervading scepticism, being attributed to "changes in age constitution, improved diagnosis, and the influenza bacillus." The reviewer is inclined to believe, as stated previously, that other factors may affect the increase in pneumonia, especially among young children. Influenza and cerebro-spinal meningitis have shown an undoubted increase in Providence, and it is a somewhat sinister fact that suicides and homicides have more than doubled. Here, too, changes in the race constitution of the population may play a part.

C.-E. A. WINSLOW.

STATE SANITARY REPORTS.

INDIANA.

The Twenty-second Annual Report of the State Board of Health of Indiana for 1903 bears upon its cover the inscription, "Public health is public wealth," and, within, exhibits a wise combination of sound science with an appeal to popular interest, often an admirable characteristic of the sanitary literature of the Middle Western States. For each of the principal causes of death diagrams have been prepared to show age incidence and seasonal prevalence which have an important educational value. The general death-rate for the State is given as 13.4, calculated on the basis of the population in 1900, and the birth-rate is given as 17.5. The returns of deaths are said to be practically complete, but it is estimated that only half the births are reported. No doubt the returns of births are inadequate, yet the assumption that they should be doubled seems hardly warrantable, since the birth-rates in American States are rarely much over 25, and in States with a considerable rural population are lower still. The ratio of deaths under one year to total births appears, from the figures in the Indiana report, to be 17.2. This is not such a high value as to suggest a marked discrepancy between the reporting of births and deaths. Among the causes of death, phthisis is far in the lead. Infantile diarrhœa and diseases of infants are high, and typhoid fever is excessive, accounting for 40 deaths per 100,000 population. These facts call urgently for support of the sanitary efforts which Dr. Hurty is making. Appendices to the report contain a full tabulation of deaths by causes and months, by causes and ages, by causes and race (white, colored, American, foreign), and by causes and social condition. The causes of death are classified according to the International System, and the figures should prove of value in comparative studies.

MASSACHUSETTS.

A new series of *Monthly Bulletins of the State Board of Health* of Massachusetts began with January, 1906. Each number is a pamphlet of 20–30 pages, including under the head of vital statistics the weekly returns of deaths from cities and towns of more than 10,000 population. The accuracy of the system of reporting is indicated by the statement that, although "the number of deaths reported each week does not correspond exactly with the number which occurred during that week," "the discrepancy is a slight one in most cases." In the tables are given the number of deaths under five years, and the deaths from principal infectious diseases, acute lung diseases, phthisis, diphtheria, typhoid fever, and measles. It would be well to specify in each number just what causes of death are included under the headings Principal Infectious Diseases and Acute Lung Diseases. For the month of March about 30 per cent. of the total deaths occurred under five years of age, and about 9 per cent. of the total deaths were due to phthisis. The *Bulletin* includes also much valuable information in regard to the adulteration of foods and drugs and reports on significant outbreaks of epidemic disease.

MICHIGAN.

Another document which shows an able expert struggling with poor raw material is the Thirty-fifth Annual Report of the Secretary of State on the Registration of Births and Deaths, Marriages and Divorces, in Michigan for the Year 1901. Dr. Cressy L. Wilbur naturally makes all that can possibly be made out of his figures, and acknowledges what cannot be done with candor. The death-rate for the State ranged from 7 to 10 prior to 1898, and jumped in that year to 12 with a new registration law. The present rate of 13.4 is thought to be fairly accurate. Birth statistics are still collected by supervisors and assessors,—a system said to be "grossly defective." Still-births are in this report for the first time separated from deaths, but are included as births on the ground that the birth returns are in any case so imperfect as to be of little or no value. An interesting feature of the report is a set of tables of comparative rates for births, marriages, and deaths for a number of foreign countries and American States. While fully comprehending the importance of correcting such crude rates for age and race constitution and other factors, Dr. Wilbur rightly holds that they "must always form the first step in the comparative study of vital statistics." The calculation of death-rates by months, causes, etc., in the smaller divisions of the State is less useful; thus in Table XIV, on page 71, we find set down a cancer death-rate of 12.8 per 100,000 for a certain group of cities in the month of November. This rate is based on a single death. In September of the same year there were eight deaths from cancer in the same population, giving a rate of 102.6! Even if the November deaths had fairly represented the year, the result would be of little value when founded on so small a base.

The Michigan figures show a much better condition as regards typhoid fever than do those for Indiana. The rate in the former case is only 26.3. Influenza was a very serious factor in the death-rate in 1901, causing more deaths than measles, scarlet fever, whooping cough, and diphtheria, all combined.

OHIO.

The Nineteenth Annual Report of the State Board of Health of the State of Ohio for 1904 contains only a brief analysis of death returns in the way of vital statistics. Deaths from the chief causes are tabulated by months for the cities of over 5,000 population, and the yearly results are exhibited for the villages and townships as well. As in the Michigan report before referred to, the calculation of death-rates for small districts where the basis is inadequate is subject to chance errors of great magnitude. Thus on page 602 it appears that the death-rate per 1,000 in Springfield is .88 (one death in a population of 1,135), and in Weston 39.45 (26 deaths in a population of 659).

Without figures for the age distribution of the population it is of course impossible to make accurate comparisons, but the crude death-rates for the three classes of administrative units are suggestive. The cities show a rate of 15.39 per 1,000 against 11.09 for the villages, and 7.32 for the townships. Deaths under one year make up 17% of the total deaths in the cities, 9% in the villages, and 7% in the townships. The death-rate from typhoid fever for the State appears to be very high, 41 per 100,000.

RHODE ISLAND.

To review The Fifty-first Report relating to the Registry and Return of Births, Marriages, and Deaths, and of Divorce in the State of Rhode Island for 1903 is a pleasant task, for the Rhode Island reports are certainly the best registration reports published by any State in the Union. The original data are of good quality, and always well handled. The percentage of the total deaths reported from unknown causes has fallen to less than .5, from 10.7 in 1856–60.

The crude birth and death rates for the State are both probably fairly accurate, and the birth-rate for 1903, 25.3, serves as a fair standard for estimating the imperfection of such rates as those reported for Michigan and Indiana. Since 1869 neither rate has changed materially. Comparing the five year periods, 1869–73 and 1899–1903, the birth-rate has risen from 25.0 to 25.5, and the death-rate from 16.5 to 18.5. Both increases are no doubt partly due to the improvement in registration. The yearly birth-rates appear to be omitted from the original report, only the curious inverse ratio of the population to one birth being given, and in the table in question, on page 119, there are a number of obvious misprints, apparently proof errors.

With regard to the prevalence of individual diseases the most important comparative data are the ratios to total deaths, which are given by counties for 1903 and for the important causes by five-year periods since 1866. Such ratios are often severely criticised as comparisons of two independent variables, yet the reviewer is of the opinion that they may often have great practical value. Even in the case of the counties and other divisions of the State which are compared in Table IX the ratios of the more prevalent individual diseases are suggestive, if the death-rates from all causes be borne in mind as well, although the number of deaths from many causes is of course too small to warrant any conclusions. The conditions of the city of Woonsocket appear to be somewhat peculiar. Influenza is very low, but lung tuberculosis, bronchitis, pneumonia, and broncho-pneumonia are all excessive, accounting together for over 27% of the total deaths. The proportion of deaths from diarrhœal diseases of children is also excessive. The ratio of deaths from a certain cause to total deaths is certainly significant where the crude death-rate does not vary appreciably, as in the State of Rhode Island as a whole, and the ratios given for individual diseases for the last forty years yield much information. Thus the ratio for typhoid fever has fallen from 4.2% of the total deaths in 1866–70 to 1.2% in 1896–1900. A comparison of the ratios for tuberculosis, pneumonia, and bronchitis brings out the inverse relation of the former, as compared with the two latter diseases, which has been noted between tuberculosis and pneumonia in Boston. Only a careful study of age distribution can make the meaning of this relation quite clear.

CONSUMPTION, PNEUMONIA, AND BRONCHITIS IN RHODE ISLAND.

Per Cent. of Total Deaths.

Period.	1866-70.	1871-75.	1876-80.	1881-85.	1886-90.	1891-95.	1896-1900.
Consumption	17.7	14.0	14.7	14.4	12.2	10.4	11.8
Pneumonia .	6.0	6.5	7.0	7.3	7.9	9.2	9.3
Bronchitis. .	.6	.8	1.6	2.2	3.5	3.9	3.4
Total . . .	24.3	21.3	23.3	23.9	23.6	23.5	24.5

One respect in which the Rhode Island reports are quite unique is the fact that they contain an analysis of mortality statistics by occupation. With the growth of industrial life, factory sanitation is becoming one of the most important problems in sanitary science, yet with the exception of a brief report of the Massachusetts State Board of Health and the imperfect data in the United States Census we almost wholly lack any exact knowledge of American conditions. Table XI and Table XCV of the report under consideration are devoted to this subject, and show the average age at death for each occupation for the years 1903 and for the period of 51 years and 7 months from June 1, 1852, to January 1, 1904. The figures presented for the single year are founded on so small a base as not to be of great value in most cases, and even for the long period conclusions can only be drawn with the greatest caution. In the first place the number of persons dying in certain occupations, even in fifty years, is too small to yield results free from chance errors. Thus it appears from the table that art is the most dangerous of all trades, the average age at death being only 32.1 years. This average is founded on only 49 cases. On the other hand, the second most healthy occupation appears to be that of calkers, sixteen decedents having an average age of 69.6 years. The characteristic age distribution of certain occupations markedly affects the results. Thus sailors average 49.0 years at death, and sea captains 70.8!

MAINE.

The Eleventh Annual Report upon the Births, Marriages, Divorces, and Deaths in the State of Maine for 1902 shows some interesting contrasts with certain of the reports previously considered, representing as it does a population largely native and rural. Rates are calculated on the 1900 population, perhaps fairly accurate, since the State gained only about 5% in the decade 1890–1900.

Both the birth-rate and the death-rate are lower than in Rhode Island. Since 1894 the former has varied between 20.10 and 22.23, the latter between 15.37 and 16.99. 60% of the births in this State are still of native parentage against about 40% in the cities. The proportion of native births for the whole State of Rhode Island, on the other hand, is only 30%. The ratio of divorces in Maine is a sinister figure, one divorce to every 6.5 marriages.

The latter part of the report is devoted to a valuable analysis of deaths from the more important causes by season and by age. Table 35 based on the figures for 11 years shows the seasonal variation of the infectious diseases so well that it seems worth while to extract certain features from it. The appended table brings out the contrast between typhoid and diarrhœa in which the favoring influence of warm weather on the parasite is the controlling factor and the lung diseases where the lowering effect of cold weather on the vital resistance of the host seems paramount. Diphtheria of course follows the opportunities of infection offered by the school term.

SEASONAL PREVALENCE OF CERTAIN DISEASES IN MAINE, 1892-1902.

Ratio of Mortality for Each Month to Annual Mortality.

Disease.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Typhoid Fever	85	81	93	71	68	62	56	98	160	181	130	111
Infantile Diarrhœa	13	14	14	19	16	33	169	391	351	130	26	16
Consumption. .	101	104	118	115	115	103	95	89	88	92	86	93
Pneumonia . .	192	179	192	154	114	63	27	24	36	58	79	10
Bronchitis . . .	154	159	148	141	118	80	55	37	54	81	81	100
Diphtheria and Croup . . .	118	116	73	77	84	64	67	58	84	127	145	142

With regard to the causes of death Maine exhibits certain peculiarities. The largest factor in the mortality is "brain disease," a complex of a number of special causes, some nervous in origin and some due to pathological condition in the circulatory system. Pneumonia now comes next, having risen from fourth place, passing consumption and heart disease during the last ten years. The actual death-rate from lung diseases is low, 1.4 per 1,000 for consumption, 1.4 for pneumonia, and .3 for bronchitis. Infantile diarrhœa is also low, amounting only to .5 and the ratio of deaths under one to total births is very low, only 10.6. Cancer, on the other hand, is very prevalent, causing a death-rate of .9 per 1,000. Many of these phenomena must be accounted for by the peculiar age distribution of the population. No statistics are given to show this point, but in the appended table the reviewer has compared the age distribution of the deaths with that in Boston, as shown by the registration report for 1902.

AGE DISTRIBUTION OF DEATHS IN THE STATE OF MAINE AND THE CITY OF BOSTON, 1892. ACTUAL DEATHS.

Age.	Under 1.	1-5.	5-9.	10-19.	20-29.	30-39.	40-49.	50-59.	60-69.	70+
Maine .	1,433	590	207	463	793	673	716	957	1,490	3,289
Boston .	2,268	1,108	253	373	1,027	1,276	1,097	1,116	1,210	1,369

Evidently, the age distribution of the two populations must be radically different, and a calculation of death-rates by age periods ought to show extraordinarily low death-rates for the State of Maine, since so large a proportion of its deaths occur at advanced ages.

C.-E. A. WINSLOW.